

ROUTING AND RECORD SHEET**SUBJECT:** (Optional)

Concurrent Processing Requirements

FROM:Deputy Director, Foreign Broadcast
Information Service**EXTENSION****NO.**

FBIS-0021/85

STAT**DATE**

17 January 1985

STAT**TO:** (Officer designation, room number, and building)**DATE****RECEIVED****FORWARDED****OFFICER'S
INITIALS****COMMENTS** (Number each comment to show from whom to whom. Draw a line across column after each comment.)1. Chief, ISRD/ORD
Room 726
Ames Building

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FBIS-0021/85
17 January 1985

MEMORANDUM FOR: Chief, Information Systems Research Division
Office of Research and Development

FROM: [REDACTED]
Deputy Director, Foreign Broadcast Information Service

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SUBJECT: Concurrent Processing Requirements

1. Thank you for the memorandum of 27 December on concurrent processing. FBIS is interested in the topic. As you may know our ongoing Modernization efforts include storage of the FBIS products. It is our intention to store as much as 20 years of text material. Facilities to effect quick retrieval could well be enhanced through the application of concurrent processing approaches.

2. Text retrieval from a classified data base will be a daily and routine activity by a large number of FBIS personnel. Our current approach, within the approved and funded Modernization effort, is to contract for a system meeting many FBIS automation requirements. The contemplated system will include one or more commercial data base management systems. Although we have no intention of greatly modifying the vendor software, additional software will be written to extend the capability to meet our specific requirements.

3. FBIS would like to attend your seminar on the topic.
[REDACTED] Chief Systems Development Staff, will represent FBIS
on this issue. She can be reached on [REDACTED]

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cc: C/SDS

DDS&T/FBIS, (17Jan85)

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Distribution:

- Original - Addressee
- 1 - D/FBIS Chrono
- 1 - C/SDS
- 1 - Modernization File
- 1 - FBIS Registry

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ORD 1388-84

27 December 1984

MEMORANDUM FOR: Distribution

FROM : Philip K. Eckman
Director of Research & development

SUBJECT : Concurrent Processing Requirements

1. Action Requested - That you suggest applications of parallel or concurrent computer processing (para 3 below), and indicate your interest in attending a seminar on concurrent processing which would bring industry vendors and potential Agency applications together (para 4 below). We would appreciate your response by 18 January so we can finalize the seminar.

2. Background - Forthcoming advances in computer hardware promise improved cost effectiveness whenever the computing application can be "parallelized" -- that is, organized so various pieces of the overall task can be computed at the same time. A number of problems can be so organized. Classically, these include cases where the data is naturally thought of spatially, in one, two, or three dimensions -- e.g., signal analysis, networks, and weather or oil-reservoir simulation modeling.

As more powerful processor chips are developed, computer architects are drawn naturally to design systems with multiple processors. The hardware design challenge is how to interconnect the processors and their memory -- everything talking to everything else requires geometrical growth in the number of interconnections. For systems programmers the battle is with the law of diminishing returns -- controlling and servicing more and more processors may mean that each additional processor adds less and less to the overall system performance ... and may even degrade performance. For compiler writers, the task is to design them so they produce efficient, parallel code without knowing the details of the particular application. For applications programmers the goal is to program in such a way as to give the compiler a chance. Ultimately, however, the challenge is for the analyst to recast the problem into as many independent pieces as possible and produce new algorithms which take better advantage of parallel processing.

3. Agency Applications - For those applications which you think might benefit from new, concurrent processing architectures, please indicate:

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SUBJECT: Concurrent Processing Requirements

- a. nature of the intelligence application ... a brief description at whatever level of classification is required;
- b. scope of the computation ... how often would the computations be done? by what measures are conventional computing resources inadequate?
- c. kinds of computational algorithms now used ... are they standard? from what branch of science or math do they derive? where were they developed? in what language?
- d. budgetary status of the program ... is the program now funded? are funds available for new hardware? are funds available which could be used to do the recoding which might be required to switch to a new hardware architecture if the hardware were available "free"?

4. A Seminar on Concurrent Processing is being planned by The Office of Research and Development for the spring of 1985. This will bring together computer scientists, prospective vendors, and Agency personnel in order to exchange information on concurrent/parallel processing.

- a. would you like to attend? are there others, not on our distribution list who should be invited?
- b. are there contractors/vendors whom you think we should invite?
- c. can you suggest the appropriate classification level at which the conference (or parts of it) should be held?

5. ORD's focal point for this effort will be [redacted] Chief Information Systems Research Division [redacted]. Your responses should be addressed to him. If you have any question, don't hesitate to call him, or me [redacted]

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[redacted]
Philip K. Eckman

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